

A Brief Summary of the National River Restoration Science Synthesis (NRRSS)

Cliff Dahm

CALFED Science Program

cdahm@calwater.ca.gov




NRRSS
National Riverine Restoration Science Synthesis

- **Objectives:**
  - Characterize modern river restoration practices
  - Determine the role of the scientific method and ecological knowledge in river restoration
  - Identify the common elements of successful ecological restoration of streams and rivers
  - Identify critical gaps in ecological knowledge that must be filled to facilitate more effective stream and river restoration

Phases:

1: Database creation

Collected project records for ~40,000 projects

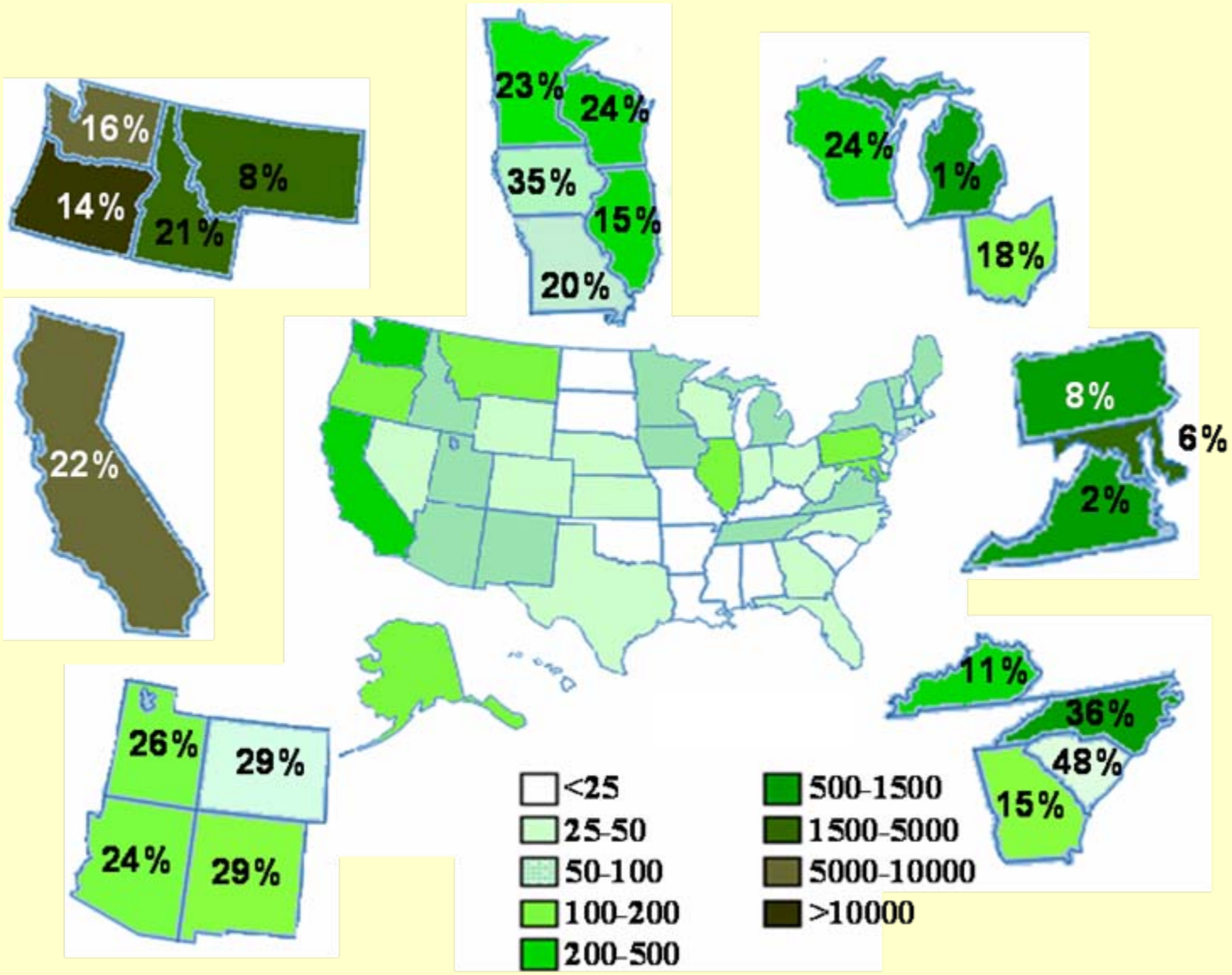
Designed & constructed a database to merge all records into a common format

2: Interview surveys of ~ 400 project managers

3: Data analysis of restoration trends/effectiveness

- **Project website: http://www.nrrss.umd.edu/NRRSS_INDEX.htm**

National and Node Level Project Densities (n ~40,000) & Percentage of Projects Monitored by State

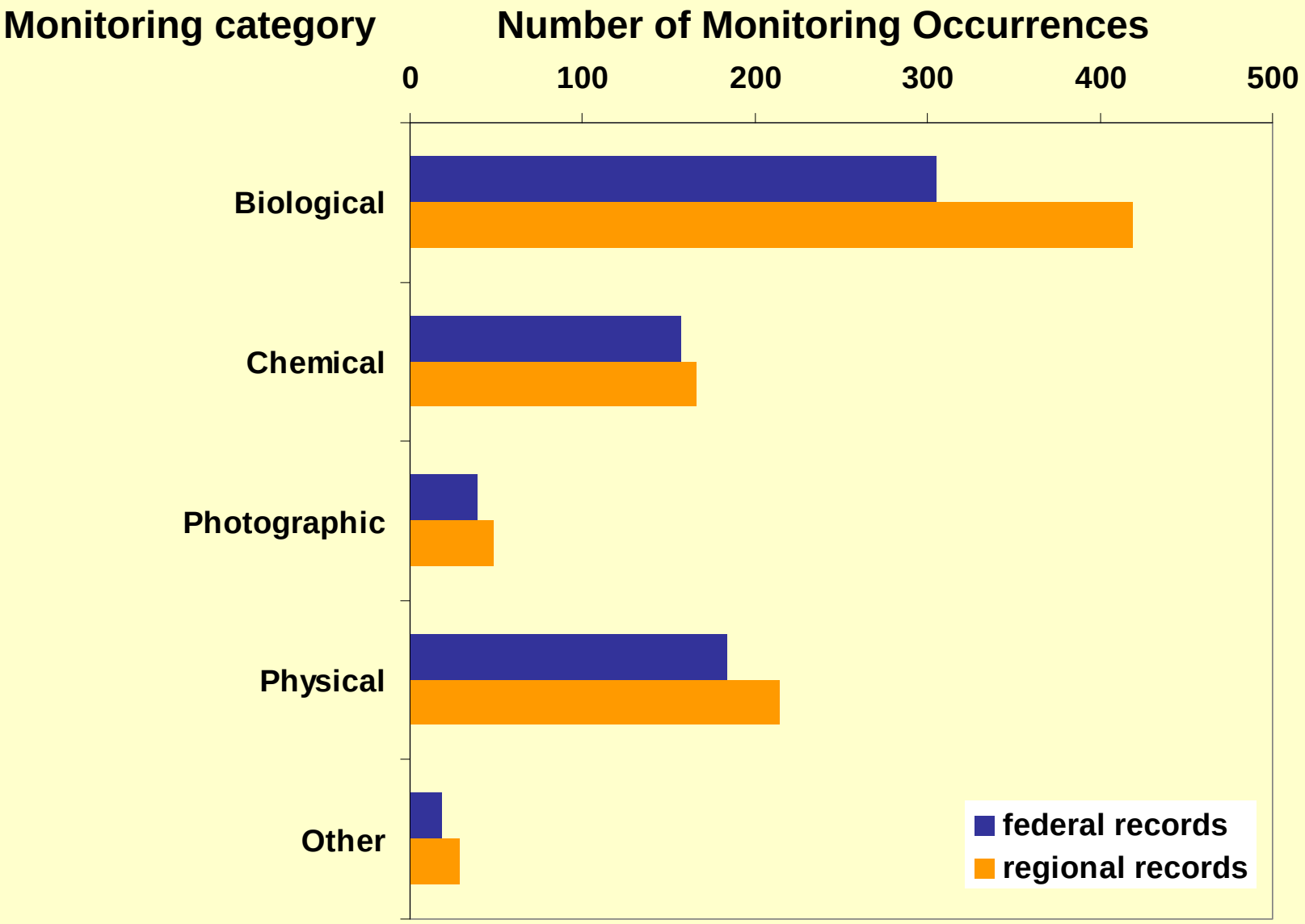


Distribution of Project Intents

Reported total = $8 billion

Estimated total = $15-17 billion

Common Monitoring Activities



The Kissimmee River Restoration Project

Cliff Dahm
CALFED Science Program

With Thanks to the South Florida Water Management District

Restoration of the Kissimmee River.

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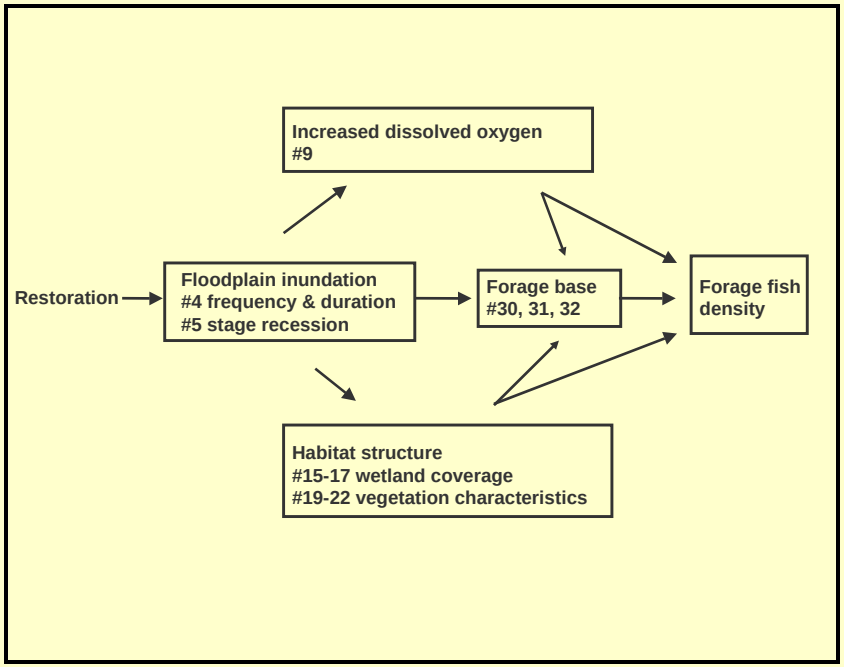
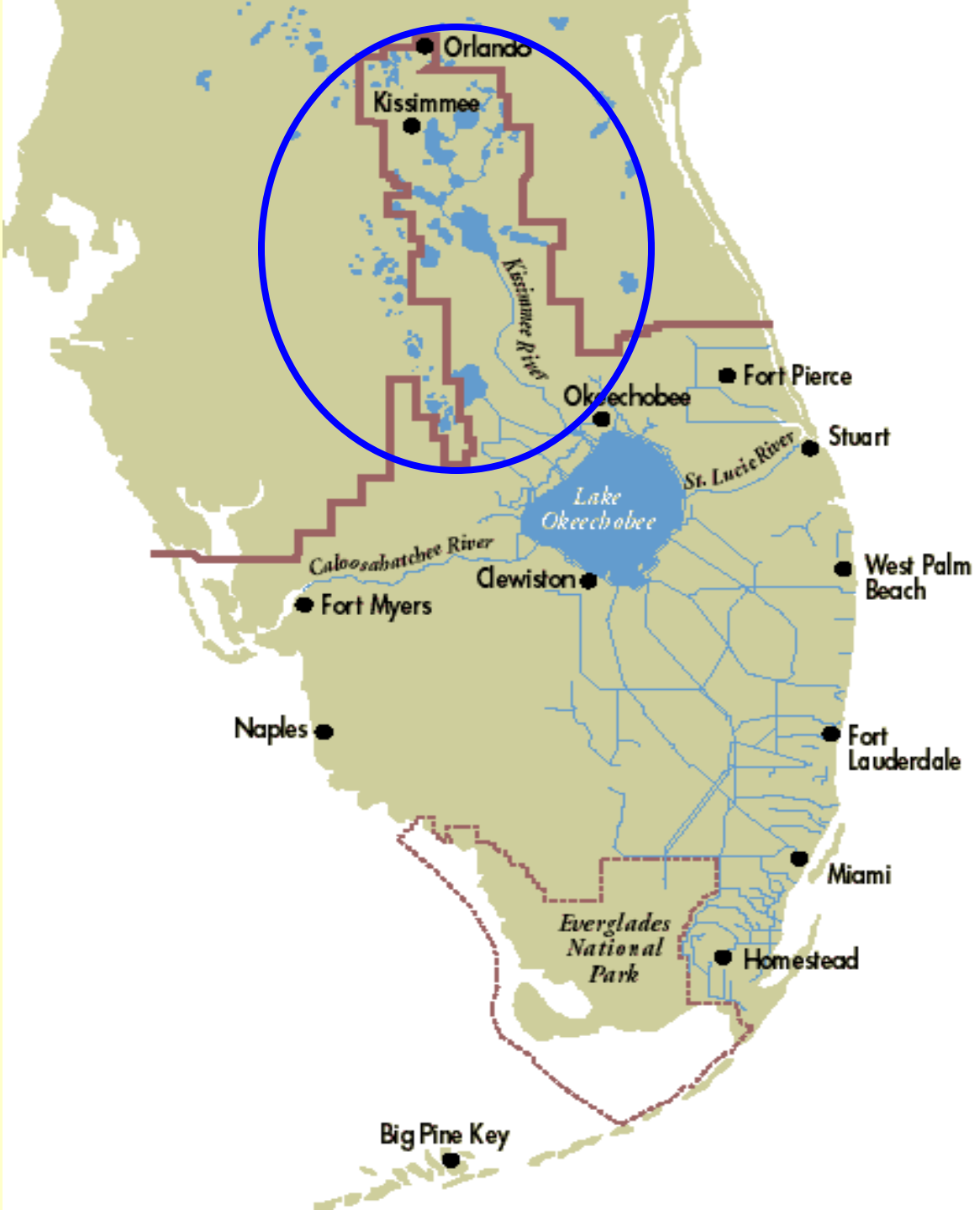
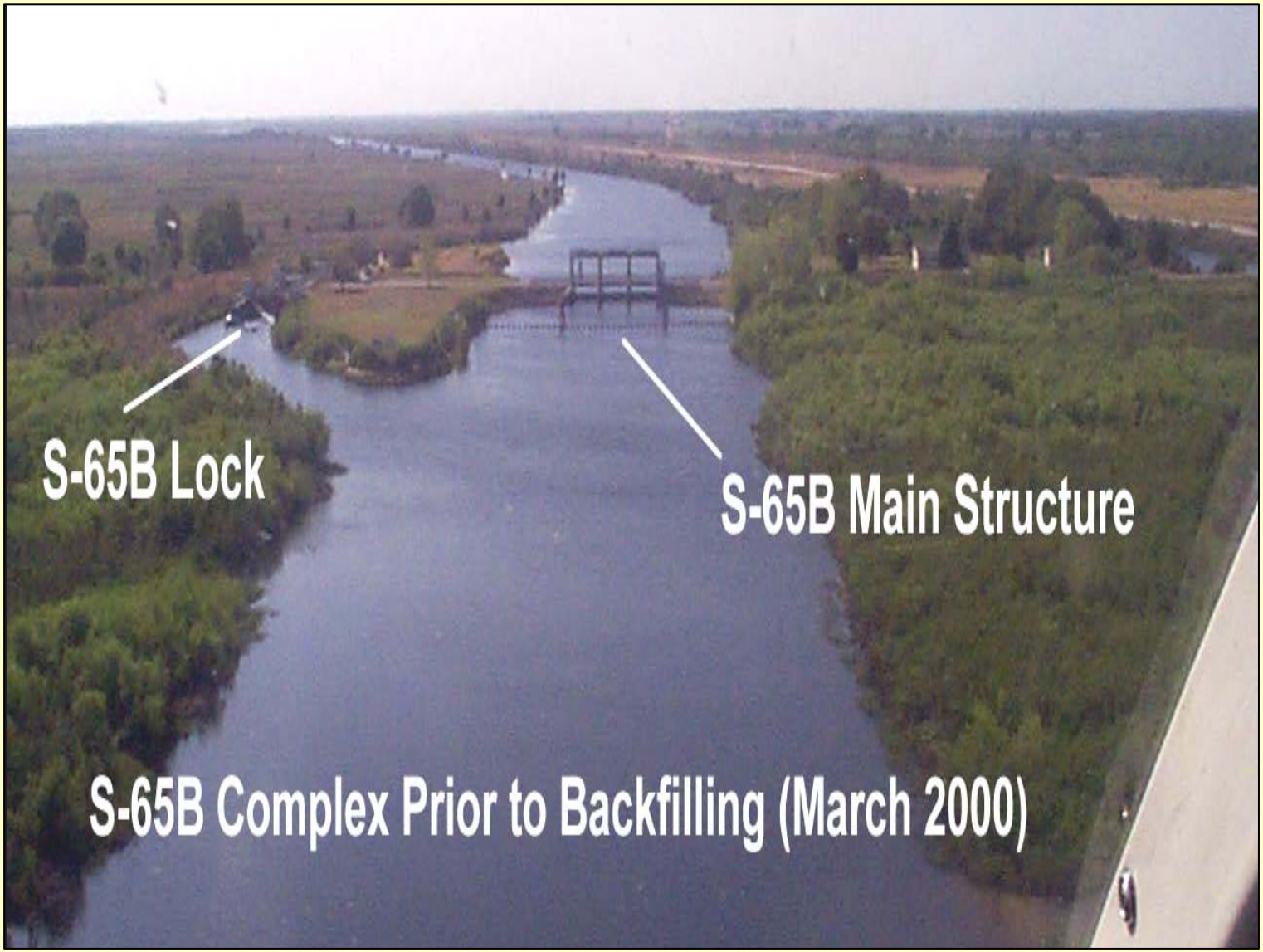


Applying Restoration Expectations.


Orlando
Kissimmee
Kissimmee River
Okeechobee
Fort Pierce
Stuart
St. Lucie River
Lake Okeechobee
Caloosahatchee River
Clewiston
West Palm Beach
Fort Myers
Naples
Fort Lauderdale
Miami
Everglades National Park
Homestead
Big Pine Key

C-38 Canal and remnant Kissimmee River, post channelization circa 1980

Initial Restoration Segment

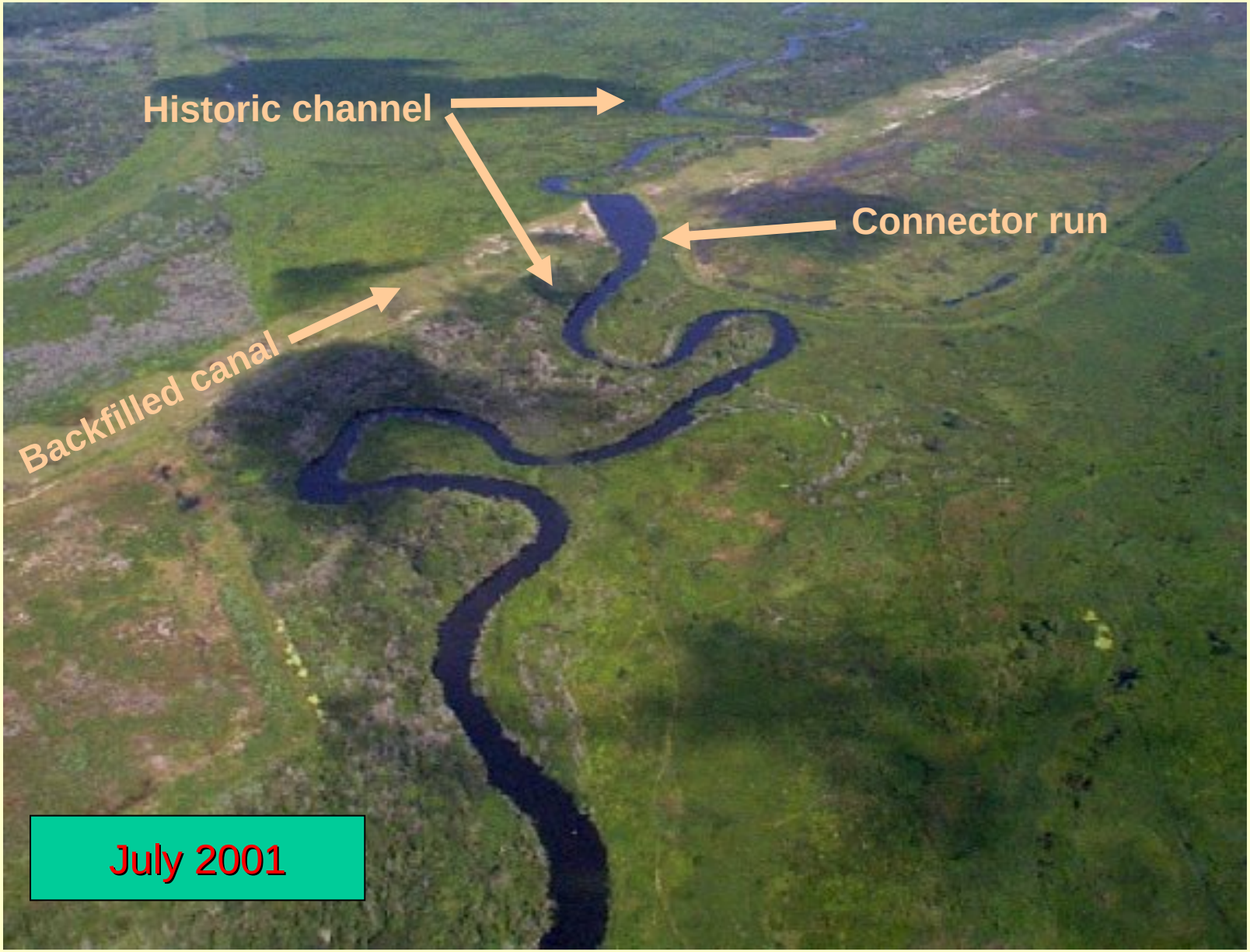


S-65B Explosive Demolition (June 19, 2000)

Photograph courtesy of Claudine Laabs

Anatomy of the Phase I Backfilling

February 9, 2001


Historic channel
Connector run
Backfilled canal
July 2001

Conceptual Model

Restoration → **Abiotic** → **Biotic**

Geomorphic

Hydrologic

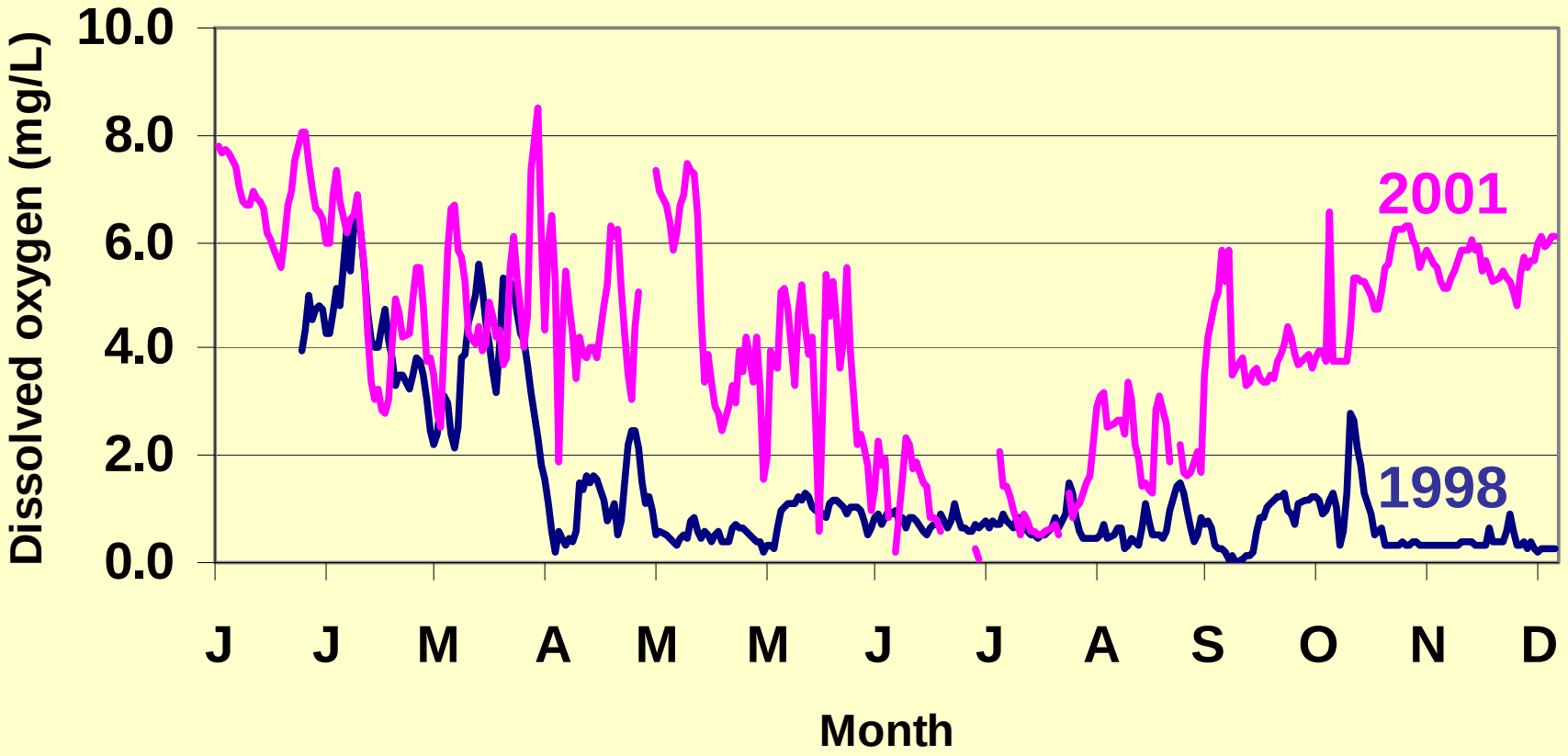
Flow

Substratum

DO

Hydroperiod

Algae
Plants
Invertebrates
Fish
Herps
Birds



Dissolved Oxygen at 1 Meter

60 Restoration Expectations
Testable Expectations of Changes

- **Hydrology - 6**
- **Geomorphology - 2**
- **Water Quality - 4**
- **Vegetation - 10**
- **Invertebrates - 11**
- **Algae - 2**
- **Herps - 2**
- **Fish - 7**
- **Birds - 11**
- **Listed species - 5**

Dedicated Issue of Restoration Ecology
September 1995

Kissimmee River Restoration Evaluation Project

http://www.sfwmd.gov/portal/page/portal/pg_grp_sfwmd_watershed/pg_sfwmd_watershed_eval_program

- A Decade of Comprehensive Monitoring
- **Wading Bird Populations (x5)**
- **Duck and Shorebirds Back**
- **River Bottom Organic Deposits Decreased by 71%**
- **Dissolved Oxygen Levels > 4 mg/L Continuously**
- **Largemouth Bass and Sunfishes from 38 to 64%**